89977

Chester L. Ekstrand
Vice President
CNS/ATM & ETOPS
Commercial Airplanes

The Boeing Company
P.O. Box 3707 MC 67-JX
Seattle, WA 98124-2207

March 6, 2000

Federal Aviation Administration
Department of Transportation Dockets
Docket no. FAA-99-6717
400 Seventh Street, SW; Room Plaza 401
Washington, DC 20590

BOEING

Subject: Docket number FAA-99-6717-59: 207 Minute Extended Range Operations with Two-Engine Aircraft (ETOPS)

The Boeing Company is pleased by the FAA decision to allow an extension of ETOPS to 207 minutes for the Boeing 777.

ETOPS is well established, having been in place for almost fifteen years, and has resulted in an outstanding reliability and safety record:

1. Twinjets, operating under ETOPS approvals, dominate North Atlantic traffic; there are more flights by twins between the U.S. and Europe than by three- and four-engine airplanes combined. Today, twins constitute more than 75% of North Atlantic traffic by U.S. airlines, while three- and four-engine airplanes account for less than 25%. When U.S. and European airlines are considered, twins still dominate, accounting for more than 55% of all flights across the North Atlantic.

2. As of December 31, 1999, the Boeing B-757/767/777 (which are widely used on ETOPS) have flown a total of more than 46.5 million hours (in excess of 93 million engine hours). If the B-737 (also used on ETOPS) were included, the total would be over 146 million hours flown and more than 292 million engine hours.

3. Boeing twins have flown more than 1.7 million ETOPS flights around the world with an outstanding safety and reliability record.

4. On a worldwide basis, 59% of B-757/767/777 airplanes are equipped for ETOPS (1,100 airplanes out of 1,880). Of the operators of the B-757/767/777, 64% operate them on ETOPS routes (104 operators out of 163).

5. The B-767 was the airplane that totally changed traffic patterns on the North Atlantic; we believe the B-777 will have a similar impact on the North Pacific.

6. There are already over 260 B-777 airplanes in service and all of them are equipped for ETOPS. The B-777 has already flown over 1.75 million hours or more than 3.5 million engine hours. Thus far, with over 100,000 ETOPS flights, the B-777 has had only one diversion resulting from an inflight shutdown in the ETOPS phase of flight. The twelve-month, rolling-average inflight shutdown rate for the B-777 fleet (all engine types included) is .007/1,000 engine hours, which is significantly better than the FAA-recommended target rate of .02/1,000 engine hours. Of the 23 operators of the B-777, nineteen are operating on ETOPS routes.

7. Data shows that ETOPS twins have a lower rate of both diversions and air turnbacks, from propulsion related causes, than do four-engine airplanes.

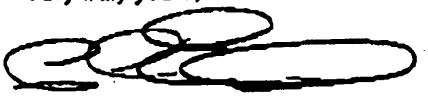
BOEING

Despite their excellent record, twinjets remain subject to requirements that are significantly more restrictive than those that apply to three- and four-engine airplanes. While these restrictions may have been prudent fifteen years ago, when the industry did not have sufficient data reflecting operation of twins on long-range flights, they now appear conservative. Some of the restrictions placed on twins may unnecessarily compel an airline to operate an economically inefficient route, or revert to use of an older three- or four-engine airplane with a statistically higher accident rate. In light of the success of ETOPS and the demonstrated reliability and safety of twins, we are pleased to see the FAA state their intent to task ARAC to recommend safety standards and procedures for extended-range operation of airplanes, regardless of the number of engines.

Boeing has had an opportunity to review some of the comments already received by the FAA during the comment period for this docket. In our view, many of these comments repeat comments previously submitted and disposed of by the FAA for docket number 29547. In addition, some of the current docket comments are not germane to 207 minutes in the North Pacific, while others contain inaccuracies about Boeing airplanes or other factual errors and misrepresentations. Therefore, Boeing submits the attached enclosure to this letter for the purposes of clarification and accuracy.

Boeing supports the 207 Minute Extended Range Operation with Two-Engine Aircraft (ETOPS) Operation Approval Criteria and strongly urges the FAA to adopt the policy effective March 21, 2000.

Very truly yours,



C. L. Ekstrand

Enclosure

Enclosure
page one of two

1. One commenter states, "FAA's decision to allow dispatching certain flights up to 207 minute diversion time in this area will increase the exposure to an extreme operating environment and result in a clear decrease of operational safety margins." The commenter ignores the fact that airlines have been operating under ETOPS requirements in this region since the early 1990s. To date, 11 airlines have operated B-757, or B-767 or B-777 in this area of operation. Total ETOPS flights in this area exceed tens of thousands. Moreover, the commenter does not seem to recognize that airlines will be relying on the same alternate airports for 207 minute ETOPS that they have normally used during nearly ten years of 180 minute ETOPS.

2. The same commenter, under 'differences against ICAO standards and practices', makes a fundamental assumption that is flawed, then proceeds to offer distorted arguments on the 'impact of FAA decision on international competition.'

   Despite facts and data provided by the FAA in its 'Discussion of Comments from Previous Notice,' this commenter continues to assert that the FAA changed the status of ETOPS findings in the Airplane Flight Manual and TCDS from a limitation to a determination of suitability. In fact, the FAA has used a consistent process since the beginning of ETOPS in 1985. Definition of suitability for ETOPS is not a limitation and thus has never been in the Limitations section of the Airplane Flight Manual. The FAA Policy on 207 minutes requires the FAA to assess the airplane for 207 minutes; this policy is similar to earlier FAA policy for assessing the suitability of the airplane for 138 minutes. Thus, the overall process is consistent with the practices adopted since 1985.

   The commenter states, "Annex 6 to ICAO Chicago Convention (Paragraphs 4.7.1 and 4.7.2) requires the State of the Operator to follow prescribed standards for approval of ETOPS operations and to keep the operational approval within certified limits." We are not able to see such statements in either of these paragraphs.

   The same commenter further states, "Annex 8 requires the State of Design to establish aircraft limitations appropriate to the maximum approved diversion time." In our view, the intent of Annex 8 is to establish any limiting time related to system reliability, and (if such exists) to show such limit(s) in the Limitations section of the AFM. For operations thus far approved (or for which approvals are pending), reliability of 777 systems has not been found to be limiting. Therefore, no such limitations have been included. The Boeing Company looks forward to the day when airlines are able to operate the B-777 to the limits of its system reliability as suggested by Annex 8. The same commenter further extracts selected text from the Airworthiness Technical Manual Paragraph 6 and distorts what ICAO recommends that an Airplane Flight Manual should include. In fact, the Technical Manual recuires the following in a Flight Manual:

   Flight Manual Information

   The aeroplane flight manual should, in respect to extended range operations, contain at least the following information:

a) the maximum flight time, one power-unit inoperative, for which the systems reliability has been approved in accordance with the airworthiness requirements established for extended range operations;

b) a list of additional equipment installed to meet the airworthiness for extended range operations;

c) additional performance data, including limitations, and flight procedures appropriate to extended range operations;

d) a statement to the effect that the aeroplane systems associated with extended range operations meet the required airworthiness and performance criteria but that the meeting of such criteria does not by itself constitute approval to conduct extended range operations.

As evident from the above, the ICAO Annex or Technical Manual has no requirement to include ETOPS time in the Limitations section of the Airplane Flight Manual.

We do not see any violation of ICAO-recommended practices by the FAA on this issue. Therefore, all the commenter's arguments regarding filing differences and impact on international competition are flawed and must be ignored.

Furthermore, FAA practices have been well accepted by other regulatory authorities around the world, including the European authorities.

3. The same commenter asserts, "former FAA policy allowing 138 minutes diversion time (instead of 120) over North Atlantic effectively contributed to safety by permitting operators to avoid higher risk alternates in Greenland (Sondre Stromfjord, Thule and Narsassuaq)." Referring to enroute alternates (Petropavlovsk, Magadan, Shemya, Cold Bay) in the North Pacific, this commenter (under 8. Airports) goes on to state, "AECMA original comments highlighted a number of factors that increase the risk in case of diversion to one of the northern alternates in winter." Even though the commenter makes similar statements regarding the level of risks for North Atlantic and North Pacific, the commenter's conclusions are very different, "On the contrary, present 207-minute policy increases substantially the risk of North Pacific operations." Thus, this commenter appears to contradict himself.

4. This commenter also attempts to change history. In 1985, when AC 120-42 was released, it included 120 minute and 138 minute authority. Thus, the 138 minute provision was not added later, as this commenter argues: "FAA policy allowing 138 minutes diversion time (instead of 120) over North Atlantic effectively contributed to safety by permitting operators to avoid higher risk alternates in Greenland (Sondre Stromfjord, Thule and Narsassuaq)." Furthermore, as with 207 minute policy, 138 minute authority could be exercised only when an adequate airport was not suitable at the time of dispatch. The commenter fails to recognize that in the mid-1980s, U.S. and European airlines relied on the same alternate airports for 138 minute ETOPS that they normally used for 120 minute ETOPS, and that 138 minutes permitted use of some southerly tracks when enroute alternates needed for 120 minutes were not suitable. Therefore, the commenter's reasoning in the above may be seen to be inconsistent, illogical, and false.